

CLAIMS:

1. A dry etching apparatus, comprising:
 - a chamber;
 - an RF electrode provided inside said chamber; and
 - 5 a plate provided in parallel or nearly parallel with said RF electrode to cover a substrate to be etched, placed on said RF electrode directly or through a tray,
 - wherein said plate is provided with a planar or nearly planar obstacle that inhibits a part of gas and plasma from passing
 - 10 through said plate.
2. The dry etching apparatus according to Claim 1, wherein a member forming said obstacle is provided with a number of opening portions.
3. The dry etching apparatus according to Claim 2, wherein
- 15 an open area ratio of said obstacle is 5 to 40%.
4. The dry etching apparatus according to Claim 1, wherein said obstacle comprises a combination of a plurality of obstacle forming members, and an opening portion is provided between neighboring obstacle forming members.
- 20 5. The dry etching apparatus according to Claim 4, wherein an open area ratio of said obstacle is 5 to 40%.
6. The dry etching apparatus according to Claim 1, wherein said obstacle comprises a plurality of long members aligned with a clearance in between.
- 25 7. The dry etching apparatus according to Claim 6, wherein

said long member is a bar-shaped or sheet member.

8. The dry etching apparatus according to Claim 6, wherein said obstacle comprises a mesh woven by crossing said plurality of long members over and under with each other.

5 9. The dry etching apparatus according to Claim 1, wherein said obstacle comprises a plurality of obstacles of a laminated structure.

10 10. The dry etching apparatus according to Claim 9, wherein said obstacle comprises a member formed by laminating a plurality of long members aligned with a clearance in between, in different directions.

11. The dry etching apparatus according to Claim 1, wherein said obstacle is made of one kind or a combination of two or more kinds selected from a group consisting of materials (a),
15 (b), and (c) as follows:

(a) a glass-based material;

(b) a metal material; and

(c) a resin material.

12. The dry etching apparatus according to Claim 11,
20 wherein said metal material is an aluminum-based material.

13. A dry etching method for forming fine textures on a surface of a substrate to be etched, said dry etching method comprising:

placing a substrate to be etched on an RF electrode provided
25 inside a chamber, directly or through a tray; and

covering said substrate to be etched with a plate,
wherein said plate is provided with a planar or nearly
planar obstacle that inhibits a part of gas and plasma from passing
through said plate.

5 14. The dry etching method according to Claim 13, wherein
said substrate to be etched is made of any one of silicon, glass,
metal, plastic, and resin.

15 15. The dry etching method according to Claim 13, wherein
said plate covers said substrate to be etched while securing
10 a distance of 5 mm to 30 mm.

16. A dry etching apparatus, comprising:

a chamber;

an RF electrode provided inside said chamber; and

15 a plate provided with a number of opening portions and
provided in parallel or nearly parallel with said RF electrode
to cover a substrate to be etched, placed on said RF electrode
directly or through a tray,

wherein said plate is structured in such a manner that
a surface and a back surface are reversed.

20 17. The dry etching apparatus according to Claim 16,
wherein the surface and the back surface of said plate are of
substantially a same shape.

18. A dry etching method, comprising:

25 placing a substrate to be etched on an RF electrode provided
inside a chamber, directly or through a tray; and

covering said substrate to be etched with a plate provided with a number of opening portions,

wherein fine textures are formed on a surface of said substrate to be etched and said plate is cleaned on a surface side concurrently.

19. The dry etching method according to Claim 18, wherein said dry etching method is a reactive ion etching method.

20. The dry etching method according to Claim 18, wherein a substrate to be etched next is placed with a surface and a back surface of said plate being reversed after said plate is cleaned on the surface side, and fine textures are formed on a surface of said substrate to be etched next.

21. A cleaning method adopted in a dry etching apparatus for cleaning a surface of a plate, said cleaning method comprising:

carrying out a substrate from a chamber;

placing a plate provided with a number of opening portions inside said chamber; and

introducing an etching gas inside said chamber.